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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,360	03/01/2004	Kenneth Kay Smith	10014266-1	9368

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INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2112

MAIL DATE	DELIVERY MODE
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10/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,360

Applicant(s)

SMITH ET AL.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8, 10-17 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 10-17 and 23-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 14-17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Regarding claim 14, a Reed-Solomon code, required by claim 13 from which the claim depends, is inherently a "linear block code" and so no further limit is apparent.

Regarding claim 15, a Reed-Solomon code, required by claim 13 from which the claim depends, is inherently a "cyclic redundancy check code" and so no further limit is apparent.

Regarding claim 16, a Reed-Solomon code, required by claim 13 from which the claim depends, cannot be a "convolutional code" and so no further limit is apparent.

Regarding claim 17, a Reed-Solomon code, required by claim 13 from which the claim depends, is inherently a "burst-correcting code" and so no further limit is apparent.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 11-15, 17 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,772,385 to Ohyama *et al* (hereafter "Ohyama") in view of U.S. Patent No. 5,805,564 to Kobayashi *et al* (hereafter "Kobayashi").

Ohyama discloses arrangements for decoding a Reed-Solomon product code (Fig. 33) in a DVD optical disk storage device. In accordance with the DVD standard format, the inner code parity (PI) is ten bytes and the outer code parity (PO) is sixteen bytes, hence the PO encoding "has a higher capability" than the PI encoding. Ohyama shows (Fig. 2) "first and second decoders" (10, 12) that are "configured to recover" the original data used to generate the product code. As described by Ohyama (column 16, lines 44-47) when error-check results indicate no errors after correction by PI-decoding or PO-decoding, the original data can be transferred to the host without further decoding. Accordingly, Ohyama teaches a decoding arrangement "wherein the second decoder recovers the information encoded by the second encod(ing) ... only if the first decoder cannot recover the information."

Ohyama does not show the arrangements for PI encoding and PO encoding required to generate DVD product code, and thus does not show "first and second encoders" corresponding to the PO code and PI code. Kobayashi shows (Fig. 8) a typical arrangement consisting of first and second encoders (48A, 48B) for generating a product code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the product code encoding required by Ohyama's DVD product code by means of "first and second encoders." Such an

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implementation would have been obvious because using first and second encoders is a typical way of generating a product code, as evidenced by Kobayashi.

Regarding claims 2 and 4, the recited limitations are generic to all product codes.

Regarding claim 3 and 24, the recited limitations are generic to all product code encodings.

4. Claims 1-4, 8, 10-15, 17 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,311,522 to Murakami (hereafter "Murakami") in view of Kobayashi.

Murakami discloses arrangements for decoding a Reed-Solomon product code in a magnetic tape storage device. Murakami's inner code parity is eight bytes and Murakami's outer code parity four bytes, hence Murakami's "second code" encoding "has a higher capability" than Murakami's "first code" encoding. Murakami shows (Fig. 9) "first and second decoders" (4, 6) that are "configured to recover" the original data used to generate the product code. As described by Murakami (column 2, lines 63-68) conventional decoding of the product code involves performing outer code correction processing only when inner code correction processing indicates (necessarily via "an indication if the information cannot be recovered") that errors remain. Accordingly, Murakami describes as conventional a decoding arrangement "wherein the second decoder recovers the information encoded by the second encod(ing) ... only if the first decoder cannot recover the information."

Murakami does not show the arrangements for encoding the product code, and thus does not show "first and second encoders" corresponding to the inner and outer

codes. Kobayashi shows (Fig. 8) a typical arrangement consisting of first and second encoders (48A, 48B) for generating a product code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the product code encoding required by Ohyama's DVD product code by means of "first and second encoders." Such an implementation would have been obvious because using first and second encoders is a typical way of generating a product code, as evidenced by Kobayashi.

Regarding claims 2 and 4, the recited limitations are generic to all product codes.

Regarding claim 3 and 24, the recited limitations are generic to all product code encodings.

Response to Arguments

5. Applicant's arguments filed 31 July 2007 have been fully considered but they are not persuasive.

Although applicant correctly notes that the cited decoding references teach performing decoding in each direction of coding repeatedly, however it is apparent that this mode of operation does not mean the cited decoding references do not show an arrangement "wherein the second decoder recovers information encoded by the second encoder only if the first decoder cannot recover the information" as there are plural words to attempt decoding in each direction at each iteration. Furthermore, no information recovery will be performed, according to the cited decoding references, if no errors are detected.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Stephen M. Baker
Primary Examiner
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smb